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Necessary Competency of the Researchers in Community Based Action Research to Strengthen Training Curriculum for University Researchers on the Aspect of Agricultural Community Development

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Abstract: The research has presently been used as a tool for development of agricultural communities in rural areas. Type of the research is a community based action research. However, this alternative type of the research is not yet well known and practiced and is not widely tough in the universities. Therefore most of the new generation researchers lack of skill and knowledge on community research because while in school they were tough mainly in conventional research procedure. This research was conducted to aim at elucidating competency of the young community researchers, formulating training curriculum according to the competency in order to develop the new generation of community researchers from different universities in the Northeast region of Thailand. This expected training was aimed to enable them to use community research as a tool to develop agricultural community in the rural area. The research process was divided into 2 phases; identifying competency among the expert and formulating a training curriculum to develop competency of new community researchers according to the identified competency by the experts. Qualitative research approach was employed, 12 group discussions with expert were conducted and collected data were subjected for content analysis and conclusion. The research results found that identified competency could be divided into two sets; core competency which consisted of six competencies and technical competency which also consisted of six competencies. Training curriculum was formulated according to the identified competency was divided into four content sets; basic knowledge on community research, research project proposal development, techniques and tools for data collection and analysis and synthesis of the data and report writing of community research, respectively. The formulated curriculum will be trialed and evaluated in future.

Key words: Community base action research, training curriculum development, competency development, university researchers, agricultural community development, Thailand

INTRODUCTION

In the past, the projects of rural agricultural community development in Thailand emphasized only on the increment of agricultural yield and incomes of the farmers but neglected on the importance of learning process that led to self-dependent of the farmers. Agricultural community developments of Thai official organizations were conducted by top-down approach (Nuntapanich, 2005). However at present, the projects of agricultural community development of the related organizations has been conducted by bottom-up approach and in the development process has emphasized on the participation of the local people in the area and has enhanced to empower the local people to establish the community organizations for participatory thinking, planning, decision making, operating and result obtaining from their participation which is the learning process for the local people in the community (Nuntapanich, 2007; Nuntapanich *et al*., 2006). These operations of rural agricultural community developments have brought many researches to be used as the important tools for community development such as community based action research (Stringer, 1999) or community research but it has not widely known which it is an alternative research and has not been taught in the universities so the new graduated researchers lack of the knowledge and skills in community research because while they were in the university only the conventional research procedure was mostly taught to them that caused the researchers, especially the university researchers were less interested in using community research for rural community development. Even though, some researchers has been interested in using the research as the tools for community development but it has been not exactly correct as the principle aspect because community research has specific philosophy, principle, thought and basic belief including the process and methodology which is different from general conventional research. Community research does not concentrate on the sole

discipline but it is an interdisciplinary integration which it means that community research is a paradigm, methodology and method (Sarobol, 2009) for community development by using learning process and participation to empower the people in local community.

The research network and operational teams of technology transfer to the community in the Northeast region of Thailand under the support of Office of the Higher Education Commission, Ministry of Education have a functional role to support and develop the new researchers of the universities in the Northeast region of Thailand so they would conduct the researches for rural agricultural community development. They would employ the community research process as the tools for operations which the research network has initially operated since 2003 until at present. And currently, there were many research reports revealed that these new researchers lack of knowledge, skills and understanding in the correct community research so the past finished researches could not be used as the tools for rural agricultural community development. Hence, the systemic development of new researchers that able to conduct the community research efficiently so the formulating of training curriculum which emphasize on the researcher competency development for efficient community research conduction, thus the training curriculum would be an important tool and approach to develop new researchers. Therefore, this study had the objectives; to find out the necessary competency of community researchers; to formulate a training curriculum that developing the necessary competency according to the identified necessary competency which would be available tool to develop the competency of the new researchers of the universities in the Northeast region of Thailand to conduct the community researches and served as a tool for rural agricultural community development.

MATERIALS AND METHODS

This study employed a qualitative research approach by techniques of group discussion with experts for 12 times and the research process was divided into 2 phases as following:

Phase 1: The study was conducted to find out and elucidate the Necessary Competency (NC) of Community Researchers (CR). In this phase, group discussion with experts was conducted for 5 times to find out the necessary competency of community researchers, definition of necessary competency and the level of competency in order to define the training curriculum to develop the competency of the new community researchers from the different universities in the Northeast region of Thailand. The tool of group discussion with experts was a matrix ranking which was used as decision making aid among the experts to classified the sets of necessary competency for community researchers based on the method of Khongkhasawat (2006).

Phase 2: The study was conducted to formulate the training curriculum to develop the competency of the researchers that were relevant to the found necessary competency for applying the training curriculum as a tool to develop the necessary competency of new community researchers in the universities that located in the Northeast region of Thailand. In this phase, group discussion with experts was conducted for 7 times to formulate the training curriculum, pattern and details of curriculum and learning process design.

After each group discussion with experts was conducted and data collection was completed, the collected data were subjected for content analysis, systemic content management and conclusion and returned the analyzed data and documents to the experts for examining before using them as the foundation data and content for the next group discussion activity.

RESULTS AND DISCUSSION

Necessary competency for community researcher: The results from group discussion with experts found that the initial desirable characteristics of community researchers consisted of 4 aspects as; thinking and attitude; capability in field operation; data management and capability in community research methodology which later on they were used to define the necessary competency. Each initial desirable characteristics of community researchers composed of minor constituents as shown in Fig. 1. After the initial desirable characteristics was found out, they were used to modify and to identify the necessary competency of CR which composed of 12 identified competencies that could be divided into 2 sets such; core competency which consisted of 6 competencies and technical competency which also consisted of 6 competencies as shown in Table 1. The experts classified the competency into 2 sets by using matrix ranking as a tool for decision making aid, these 2 sets were defined under the competency descriptions and each of competency descriptions was fixed as 5-level rating scale for monitoring and progress assessment in the competency development of community researchers in the next steps which the details were shown in Table 2 and 3.

Formulation of a training curriculum for necessary competency development of community researchers: After the necessary competency of community researchers was found out and then group discussion with experts was conducted to formulate a training

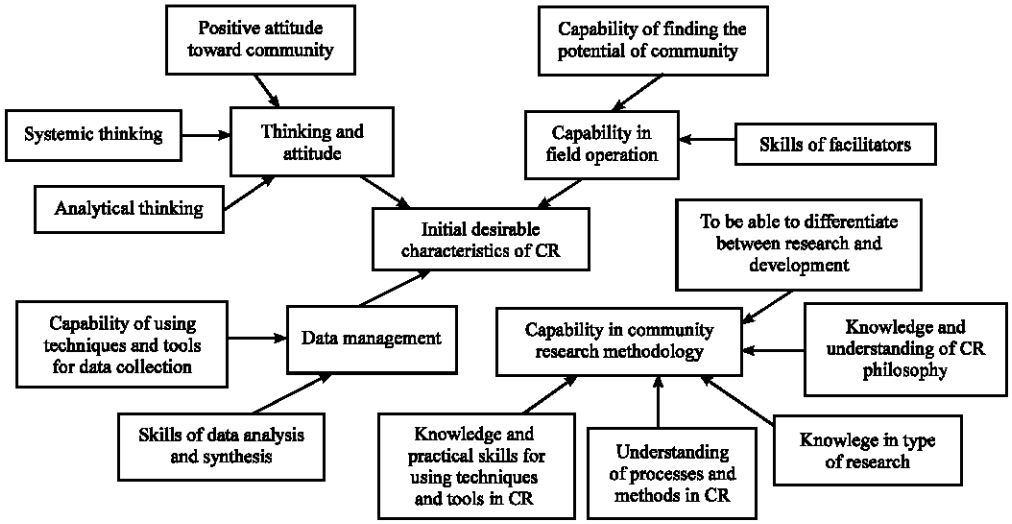

Fig. 1: The concept mapping of initial desirable characteristics of Community Researchers (CR)

Table 1: The Necessary Competency (NC) of Community Researchers (CR)

Set of competency	Necessary Competency (NC)
Core Competencies (CC)	Knowledge and understanding of CR philosophy
	Positive attitude toward community
	Systemic thinking competency
	Analytical thinking competency
	Skills of data analysis and synthesis
	Capability of differentiating between research and development
Technical Competencies (TC)	Knowledge in type of research
	Capability of finding the potential of community
	Understanding of processes and methods in CR
	Skills of facilitators
	Knowledge for using techniques and tools in CR
	Knowledge and practical skills for using techniques and tools for data collection

Table 2: Competency description and level of 6 Core Competencies (CC)

Core competency	Competency description	Level of competency
Knowledge and understanding of CR philosophy	Thought, belief, social value and goals of community development, grading up learning process and participatory analytical thinking as systemic thinking for community development, strength, dimension integration of knowledge for sustainability; understanding of research methodology related to community basic needs; potential or interest that lead community to powerful mass drive	Level 1: Lack of knowledge and understanding of CR philosophy Level 2: Ability of explanation the principles, thought and objectives of CR, and goals of community development Level 3: Ability of understanding and explanation for explaining the principles of learning process of community Level 4: Capability of knowledge integration as multi-disciplines for CR Level 5: Ability of design the research patterns that are relevant to community needs or potential or interests
Positive attitude toward community	To understand in community being, thought and feeling toward community in the aspects of knowledge and ability for itself development. Understanding and beliefs of the strength of community is the important base to develop country as well as the beliefs of the existing of community knowledge, resources and skills that are valuable to develop community itself, the community can remain and adjust itself to environment and other supported factors	Level 1: Lack of community understanding Level 2: Understanding of community being and its components and to be able to reflex the community being and condition Level 3: Ability of explanation the community potential for being used as the important base for country development, to analyze the social capitals and the dynamic changes of community Level 4: Ability of appreciation the community being and to accept community potential based on the community being Level 5: Ability of foresight on the opportunity to conduct the research and community development by specifying the approach of research patterns and community development with the micro-important points and overall views
Systemic thinking competency	The classification of many components including input and output factors of community and their interactions or the processes as reasonable overall view, sub-view and the level of dynamic changes, self-adjustment and behavior of community system	Level 1: Lack of ability of systemic thinking Level 2: Ability of explanation of main principle of a systemic thinking Level 3: Ability of classification of components and interaction among the community components of community system with the reasonable elucidation Level 4: Ability of writing of system model of community

Table 2: Continue

		Level 5: Ability of systemic thinking modification to explain the dynamic changes, adjustment and behavior system of community
Analytical thinking competency	Convergent and divergent thinking, integration and interaction among systemic thinking and divergent thinking that lead to creative thinking for building up the scope of thinking or cycle pattern thinking	Level 1: Lack of ability of analytical thinking Level 2: Ability of explanation of convergent and divergent thinking Level 3: Ability of comparing the difference among convergent, divergent and systemic thinking Level 4: Ability of analytical thinking modification for community analysis Level 5: Ability of modification of divergent and systemic thinking to build the scope of thinking and system model for community research conduction
Skills of data analysis and synthesis	Ability of tool instruction and use for data classifying, grouping and data relation finding for many systemic patterns and lead to the reasonable conclusion that can find the similarity and difference of data and can interpret and define the of data reasonably based on the principles or thinking system for result conclusion	Level 1: Ability of knowing and using tools for data analysis or synthesis Level 2: Ability of explanation of details, standard and criteria in tool using for each type of data analysis or synthesis Level 3: Ability of grouping and classifying the type of tools for data analysis or synthesis Level 4: Ability of decision making and selecting for using the appropriate tools for grouping, classifying and finding the systemic relationship of data Level 5: Ability of interpreting the meaning of data with reasonable understanding based on the conclusion principle for serving as effective information and knowledge
Capability of differentiating between research and development	Understanding of principles and goals of research, development, the application of research for development or using the development process as the base for research conduction including ability of comparing the difference and integration between research and development	Level 1: Lack of ability for differentiating between research and development Level 2: Ability of explanation of the principle of research and development Level 3: Ability of comparing the differences between research and development Level 4: Ability of application of knowledge concerning with research and development for improving the processes and procedures for conducting research and community development Level 5: Ability of research pattern design for using development process as a base for research conduction or in contrast by using research process as a base for development

Table 3: Competency description and level of 6 Technical Competencies (TC)

Core competency	Competency description	Level of competency
Knowledge in type of research	Knowledge of methodology, process and tools for research conduction related to the qualitative, quantitative, action and evaluation research approaches as well as the ability of classification of the type of research	Level 1: Ability of explanation of the principle, procedure and process of some research methods Level 2: Ability of explanation of the principle, procedure and process of the quantitative, qualitative, action and evaluation research approaches Level 3: Ability of specifying the kind of tools for each type of research Level 4: Ability of classification and comparing the characteristics among the types of research Level 5: Ability of design of each type pattern of research that is able to be modified for CR with the appropriateness
Capability of finding the potential of community	Ability of searching community background, finding of human resource as the mechanism to drive the community development. Ability of searching on the social network and supportive factors of community, the potential resources, local technology and invention of community including the finding of social capitals of community	Level 1: Lack of ability for searching the background and potential of community Level 2: Ability of instruction and understanding of the techniques for searching the background and potential of community as well as ability of explanation of some techniques for searching the important potential of community Level 3: Ability of comparing and selecting of appropriate techniques for searching the background and potential of community Level 4: Ability of modification of knowledge for pattern design in searching the background and potential of community Level 5: Ability of operational search for seeking the background and potential of community
Understanding of processes and methods in CR	Understanding of the participation in research and research process that related to CR, ability of participatory vision building of community and participatory plan establishment	Level 1: Lack of knowledge in process and methodology of CR Level 2: Ability of explanation of the participation in research and research process that related to CR Level 3: Ability of modification of participation and CR methodology for design the pattern research of CR Level 4: Ability of operation to lead to define the participatory vision of the community Level 5: Ability of establishment of participatory plans
Skills of facilitators	Existence of development vision, observant skill, learning atmospheric building skill or conflict and obstacle reducing skill that lead to the goals of activity, listening skill (attentive listen), ability of grasping of main idea or important points and conclusion, setting the chance for development, question skill by raising up the open questions for stimulating the listener to	Level 1: Lack of knowledge for being the facilitators Level 2: Ability of explanation the principles, scopes, roles and functions of facilitators Level 3: Capability of necessary skill use for being the facilitators such as the skill of observation, listen, question, important point grasp, tool using for communication and conclusion Level 4: Ability of task design and analysis for being the facilitators

Table 3: Continue

	learn, skill for stimulating in thorough participation, skill of tool using for communication and conclusion	Level 5: Ability of operation as the facilitators' roles and functions
Knowledge for using techniques and tools in CR	Knowledge for using techniques and tools in CR, instruction of the importance and roles in data collection by using each kind of tools,decision making to use appropriate tools	Level 1: Lack of knowledge for using techniques and tools in CR Level 2: Ability of explanation of principles and important techniques that are popular for CR conduction Level 3: Ability of explanation of principles, methods, roles and important techniques, and tools for CR conduction Level 4: Ability of classification and grouping of techniques and tools for employing in CR that are relevant to the objectives of applications and operations Level 5: Ability of decision making and selecting the appropriate tools and techniques in CR conduction
Knowledge and practical skills for using techniques and tools for data collection	Ability of tool construction for CR conduction, tool modification for data collection in CR with the appropriateness and correction using the tools for planning in community development and ability of examining the correction of tool using	Level 1: Lack of practical skills for using tools for data collection Level 2: Ability of tool construction for CR conduction Level 3: Ability of design the method for data collection in CR conduction by the modifying of techniques and tools for data collection with the appropriateness and correction Level 4: Ability of operation for using techniques or tools in CR conduction Level 5: Ability of evaluation, analysis and problem consideration in using tools for CR conduction and/or development of techniques or tools for CR operation

curriculum that was relevant to the required necessary competency of community researchers and to design learning activities for training the new researchers that able to conduct the community research and use it efficiently as a tool for rural agricultural community development. The curriculum pattern consisted of 4 content sets; basic knowledge on community research; research project proposal development; techniques and tools for data collection and analysis and synthesis of the data and report writing of community research as shown in Fig. 2. Each content set consisted of main topic and sub-topic in all 4 content sets composed of 13 main topics and 69 sub-topics and when classified the main topics and sub-topics of each content sets found that there were 6, 3, 2 and 2 main topics and 33, 18, 5 and 13 sub-topics in the content set No. 1, 2, 3 and 4, respectively. The main topics and sub-topics in each content set was defined based on the found necessary competency of community researchers which their relations were shown in Table 4-7.

The design of learning activities of this training curriculum has emphasized on action learning and enquiry based learning and cooperation of trainee by using problem-based learning approach, the learning activities were divided into 3 main groups such as briefing techniques, problem based learning by using the specific condition or problem which might be an actual condition or problem of the community that set up by the facilitators. The practices would be operated in training places and in rural agricultural community, the learning activities that support the practices which were designed in the training curriculum such as the approaches of group process and dynamic change, brain storming, experience exchange, role-play, knowledge management, case study and actual practice in the rural community and lesson learnt conclusion or after action review. The

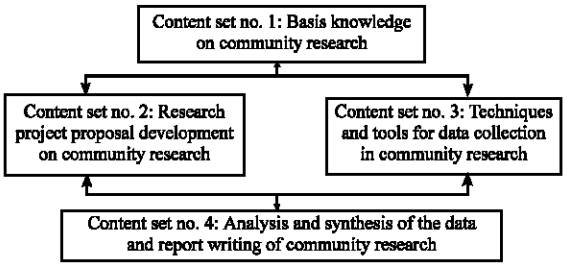

Fig. 2: Community base action research training curriculum structure

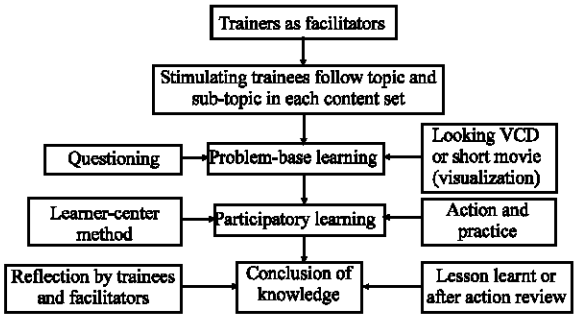

Fig. 3: Action learning process design of training curriculum

learning process might begin from the stimulating the trainees from looking at VCD or short movies or questions and then let the trainees joined in the participatory learning and experience exchange by group dynamic and reflecting by the conclusion of trainees and facilitators to set the knowledge from the learning activities. The trainers might present and lecture additionally after learning from main topics and sub-topics facilitators as shown in Fig. 3.

The period and duration of training of each content set might be conducted every 1-2 month interval that

Table 4: Details of content set No. 1: Basic knowledge on community research and relation for competency development and expected outcomes of learning

Course content framework		Competency development		Expected outcomes of learning		
Topic	Sub-topic	CC	TC	Knowledge	Skill	Attitude
Philosophyof CR	Thought, belief and social value of Community Development (CD) Goals of research for CD Principle and idea for CD Learning process of community Community based action research Research as powerful drive of social movement Interdisciplinary integration for CR	CC1	-	✓	-	✓
Concept of community	Meaning of community Community system and systemic consideration in community Components of community Changes and development of community Globalization and local popularity Potential of community as the base of country development Capital and strength of community	CC2	-	✓	-	✓
Systemic thinking	System meaning and components Flow, sequence and property of system Component reaction of system Dynamic, adjustment and behavior of system Practical operation in system analysis 3.6 Modification of systemic thinking in community system analysis	CC3	-	✓	✓	✓
Analytical thinking	Convergent and divergent thinking Logical thinking Integration of convergent, divergent and systemic thinking to create a cycle model Idea scope establishment Practical operation by using analytical thinking to analyze the community	CC4	-	✓	✓	✓
Research and community development	Difference between research and development Research for CD Research process based CD Development based research Definition of problem and question for CR	CC6	-	✓	-	-
Type of research in CR	Type of research Pattern of research for CD Introduction to methodology of research (survey, experimental, qualitative, action, participatory action and evaluation researches)	-	TC1	✓	-	-

CC = Core Competencies; TC = Technical Competencies

Table 5: Details of content set No. 2: Research project proposal development and relation for competency development and expected outcomes of learning

Course content framework		Competency development		Expected outcomes of learning		
Topic	Sub-topic	CC	TC	Knowledge	Skill	Attitude
Principle of being a facilitator	Basic principle of being a facilitator Qualification, roles and function of facilitator Skills for listen, observation, important point grasp and conclusion and question Principle of learning environment establishment Analysis of task and design of process and operational practices Tools as the aid of facilitator Techniques and tools for finding the problem for CR conduction	-	TC4	✓	✓	✓
Methodology of CR	Meaning and definition of CR Principle of participation Idea and theory related to CR Steps and process for CR participatory vision of community Principle of participatory planning CR design	CC1	TC3	✓	✓	✓
Research project proposal development	Approach or method for finding potential, limitation and background of community Techniques and tools for finding potential, limitation and background of community Finding the problem for CR conduction Research project proposal development for CR	CC2	TC2, TC3	✓	✓	✓

CC = Core Competencies; TC = Technical Competencies

Table 6: Details of content set No. 3: Techniques and tools for data collection and relation for competency development and expected outcomes of learning

Course content framework		Competency development		Expected outcomes of learning		
Topic	Sub-topic	CC	TC	Knowledge	Skill	Attitude
Techniques and tools for data collection in CR	Type and kind of techniques, tools and classification Principle and method for using each type of tool	-	TC5, TC3	✓	-	-
Practical operation for using techniques and tools for data Collection in CR	Tools making Method design, appropriate technique and tool selection for data collection in CR Practical operation for using techniques and tools for data collection in CR	CC4, CC3	TC6, TC3	✓	✓	-

Table 7: Details of Content set No. 4: Analysis and synthesis of the data and report writing of community research and relation for competency development and expected outcomes of learning

Course content framework		Competency development		Expected outcomes of learning		
Topic	Sub-topic	CC	TC	Knowledge	Skill	Attitude
Principle of data analysis and synthesis for CR	Principle of data analysis and synthesis for CR Techniques and tools for data analysis and synthesis in CR Appropriate technique or tool selection for data analysis in CR Interpretation and meaning definition of data Data grading up for being the information Practical operation for data analysis and synthesis in CR	CC5, CC4, CC3	TC3	✓	✓	-
Techniques for report writing and presentation of CR	Basic principle of report writing in CR Components of CR report Techniques of CR report writing Principle of CR article writing Techniques of CR writing and process of presentation CR presentation in academic conferences Practical operation for CR report writing	CC5, CC4, CC3	TC3	✓	✓	-

CC = Core Competencies; TC = Technical Competencies

Table 8: The learning activities and period of time for training in each content set

Content set	Main learning activity	Period of time (day h^{-1})
Content set No. 1: Basic knowledge on community research	Expectation about the course, looking VCD or short movies, questioning, brainstorming, sharing experiences, facilitation, knowledge café, group discussions, case study, field visit, fieldwork or on site study, village walk, lecture, daily observation, after action review	At least 4/34
Content set No. 2: Research project proposal development	Questioning, brainstorming, sharing experiences, group discussions, looking VCD or short movies, case study, field visit, fieldwork or on site study, role play, lecture, daily observation, after action review	At least 3/25
Content set No. 3: Techniques and tools for data collection	Questioning, brainstorming, sharing experiences, group discussions, case study, field visit, fieldwork or on site study, daily observation, lecture, after action review	At least 3/25 At least 2/16
Content set No. 4: Analysis and synthesis of the data and report writing of community research	Questioning, brainstorming, sharing experiences, group discussions, case study analysis and synthesis, daily observation, lecture, after action review	

would be the benefit for the trainees to search, review and actual practice in the real community before coming back to the next content sets, the period of time for each content set at least were 4, 3, 3 and 2 days or 34, 25, 25 and 16 h for content set No. 1-4, respectively. The learning activities and period of time for training were shown in Table 8. For the evaluation of learning activities would be operated based on the expected outcomes and competency changes of the trainees. The evaluation process would be conducted as the pre-training and post-training competency evaluation and the monitoring on the continuous changes of the trainees after the end of training process, especially the competency evaluation (Fig. 4). This research could organized and criticized the results of research as following:

The initial desirable characteristics of community researchers according to the opinion of the experts found

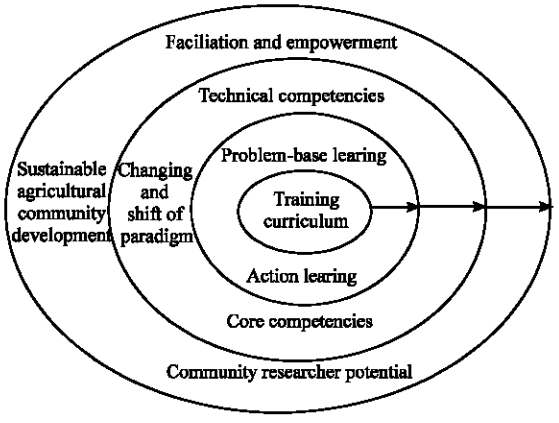

Fig. 4: The expected model of the competency development of the community researches for using the research as the tools in rural agricultural community development

that it consisted of 4 aspects such as; thinking and attitude, capability in field operation, data management and capability in community research methodology.

The necessary competency of CR which composed of 12 identified competencies that could be divided into 2 sets such; core competency which consisted of 6 competencies and technical competency which also consisted of 6 competencies.

The curriculum pattern consisted of 4 content sets; basic knowledge on community research, research project proposal development, techniques and tools for data collection and analysis and synthesis of the data and report writing of community research which they were divided as 13 main topics and 79 sub-topics.

The learning process of this training was designed as action learning by trainee-centered learning for joining in enquiry based learning based on the problem and condition that set up by facilitators and trainers and trainees would participate in group dynamic which the learning activities were divided into 3 types such as; briefing techniques, practical operation learning (learning by doing) viz. brain storming, experience exchange, role-play, knowledge management, case study and actual operation in the real situation and lesson conclusion or after action review.

The results of this research found that the initial desirable characteristics and competency of community researchers would bear in mind of them such the thinking and attitude which were very important for community research conduction, they must believe that the people and community had knowledge, capital and potential for development and they should accept the decision of the community. Besides, the community researchers must have the thinking skills and processes and systemic, analytic thinking due to the community research must consider on the overall view and the research operation must depend on the actual situation of the community, and systemic thinking concerning with system components, flow, sequence and reaction including analytical thinking especially convergent and divergent thinking that helped the researchers to find the problems and potential of the community that led to understand the community and could design the research pattern. Therefore, 3 of 6 core competences would relate to thinking and attitude such as; positive thinking toward the community, ability of systemic thinking and ability of analytical thinking.

As well as the community researchers must have the ability of methodology, philosophy of CR and the ability of differentiation between research and development which the researches could use the CR to be the tools for CD they should know that the research would create the knowledge for development but in contrast the development needed only the knowledge but CR has been the approach of creating knowledge and applying that community knowledge for supporting the potential or solving the problems of the community.

The ability of methodology of CR composed of core competency and technical competency which could be eminent as 5 total competencies viz., knowledge and understanding of CR philosophy, capability of differentiating between research and development, knowledge of type of research, knowledge of methodology, knowledge of techniques and tools in CR. The CR must operate in the target area so the participation and people learning in the community for finding the potential by the assistance of the facilitators, therefore the success of CR would depend on 2 aspect of the initial desirable characteristics of the researchers such as; ability of finding the potential of community and facilitator skill in CR operational process that stimulated to build the knowledge and knowledge utilization which was different from development.

Therefore, the community researchers must have a ability in data management after they operated in the actual field for grading up the data to be the information and knowledge. Hence, one more desirable qualification of the community researchers for the efficiency of CR conduction was a ability of data management which consisted of 2 competency, skills of techniques and tool use in CR, skills of data analysis and synthesis.

CONCLUSION

This research was conducted to find out the initial desirable characteristics and the necessary competency of community researchers as well as to formulate the training curriculum for developing the competency of community researchers and found that they could work efficiently in CR if they had, thinking and attitude, capability in field operation, data management and capability in community research methodology. The curriculum was formulated based on action learning and problem-based learning to develop the necessary competency and change the paradigm of the community researchers that led to develop them to research in CR efficiently which would be the approach to facilitate and empower for the sustainability of rural agricultural community development as shown in Fig. 4.

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